

# The Mining Journal

## RAILWAY AND COMMERCIAL GAZETTE

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 432.—Vol. XIII.]

LONDON: SATURDAY, DECEMBER 2, 1843.

[PRICE 6D.]

### MESSRS. NEWALL AND CO.'S PATENT IMPROVED WIRE ROPES.

In laying the following testimonials before the public, it may not be considered uninteresting to give a short sketch of the origin of the important invention to which they refer. It is difficult to ascertain who first suggested the idea of using metallic wires instead of yarns of fibrous materials for making ropes. We have, however, been informed by the late Sir John Robinson, that he saw wire cordage used in the machinery of the opera at Paris, in 1822; and, in the report on Harris's Lightning Conductor, laid before the Lords Commissioners of the Admiralty in 1839, it is stated that wire ropes were used as lightning conductors in the French navy—a piece of wire rope, obtained from the frigate *Calypso*, when at Chatham, in 1832, having been produced for the inspection of the committee. In the report, page 20, it is stated to consist of three strands of eight wires each; and in the sketch, plate 11, it is stated to consist of two strands of twelve wires each. Experiments on the subject of their application, as ropes for mines, were made at Freyberg, in Saxony, in the year 1827, but it was not till 1834, that they were successfully used in the mines of the Harz Mountains. The suggestion of the plan, then adopted, is due to M. Albert, director-in-chief of the Hanoverian mines. In the course of a very short time wire ropes completely superseded the hemp ropes and chains used in those mines; they were generally made of four strands, composed of four wires each, "laid" together, until the plan patented by Messrs. Newall and Co. became known, when it was adopted. In France a great many suspension bridges have been made during the last twenty years—the suspension cables being formed of parallel straight wires, bound together by wires lapped round them, descriptions of which were published in this country in 1825, and several are described in *Dewey's On Suspension-Bridges*, published in 1832; while in this country a patent was taken out by a Mr. Andrew Smith for applying a similar combination of wires to standing rigging. Wires, combined in this way, however, possess no advantage over a bar of iron, being nearly as inflexible, and it having been found impossible to strain each wire equally. In 1836 Mr. Smith took out two other patents; one for making flat-bands, or straps, by twisting wires together into strands, and combining them by interweaving strings or spun yarn; the other for improvements in standing rigging, by winding wires into links, and so making chains! In 1837, a description of the method of making wire ropes, employed at Clausthal, in Hanover, was published in various scientific works in this country, as described by M. Albert, the inventor, in the *Archiv. für Mineralogie*, &c., Berlin, 1835; and a paper, on the same subject, was read by Count Brenner at the meeting of the British Association, held at Newcastle in 1838. In 1839, Mr. Andrew Smith took out a patent for improvements in the manufacture of ropes, which were to be made in a similar manner to common hemp ropes, by twisting wires together into strands and ropes. Ropes, on this plan, were for some time used on the Blackwall Railway, but have now been superseded by those patented by Messrs. R. S. Newall and Co. in 1840 and 1843, which are made by machinery, invented for the purpose, and by which a motion is given to each wire, so as to prevent its being twisted, while the wires, generally six in number, are laid symmetrically round a core, forming the strand; and the strands (also generally six) round a core in forming the rope, so that the wires are all of the same length, and are subjected to an equal strain. By this means the greatest possible strength is obtained from the material employed. Messrs. R. S. Newall and Co. have great pleasure in laying the following testimonials before the public, the superiority of their rope over all others being now fully established.—*Team Wire Rope Works, November, 1843.*

The following are extracts from **TESTIMONIALS** in the possession of Messrs. R. S. Newall and Co.:

- "I have had your wire ropes in use at my coal and lime works for more than two years and a half. The work done by these ropes has been extremely satisfactory to me, and far outdoes the wear of any hempen ropes. I stated in a former letter that I considered these wire ropes a national benefit; my opinion has been fully borne out by the experience I have had of their use."
- "I have much pleasure in bearing testimony to the superiority of your wire ropes, as compared with others we have had in use on this railway. There are now eleven miles of your rope on the line out of thirteen, some of which has been in constant use for two years."
- "His attention was soon called to wire rope, of which there was a variety of kinds; he recommended the directors to make trial of the whole of them. The result was, the selection of an improved wire rope, which had not broken once in four months, and only once in six months. The objectionable wire rope would soon be removed from the line. He believed the principle on which it was made was objectionable."
- Note.*—The improved wire rope referred to was made by Messrs. Newall, and has been in constant use since August, 1841.
- "The six miles of your patent wire rope at work on this railway are giving entire satisfaction. The endless rope on Red-bush incline (1000 yards long) works perfectly."
- "Wire ropes have been introduced on this line; it was thought they would be at least 20 per cent. cheaper, but the fact is they are likely to be 50 per cent. cheaper."
- "I consider your wire ropes to be of a very superior description. We have forty miles of rope at work, thirty-seven of which are wire. The first we had from you has been at work two years—three times the duration of hemp ropes; it is still in use, and apparently very good."
- "Your wire rope on the Oldham incline has been at work a year and a half. I have great pleasure in stating the satisfaction it has given, by the very slight appearance of wear which has as yet taken place. I may mention, at the same time, the excellent performance of some of your flat wire ropes, employed on a very trying duty at the carriage hoist at the Manchester station. Their great superiority over hemp has been shown here in a very striking manner."
- "The wire ropes we had from you have been at work since February, 1842, and are fully answering all the situations in which they are applied."
- "I beg again to express my entire satisfaction with your wire ropes at work on the inclined planes of the Shrewsbury Canal; they have been at work two years and a quarter, and I am confident will last two years more. Hemp ropes never lasted us more than two years; their cost was twice as much as your wire rope, besides being four times the weight."
- "In reply to your favour of 2d September, I beg to inform you, that the whole of the wire ropes used on board the 'GARY BASTIAN' is of your manufacture, and that I decided on adopting it after testing its strength against other specimens."
- "It gives me great pleasure to acknowledge the excellence of your wire ropes. They were placed across a cutting eighty feet deep, sixty-five yards between the points of suspension. Each rope was frequently traversed with a load of three tons, and, when the work was completed, the ropes appeared not the least worse of wear."
- "I have applied your wire rope for standing rigging for ships; in my opinion, it is as superior to hemp rope as it is to every other modification of wire manufacture which I have seen. I can with confidence recommend it."
- "Two of your flat wire ropes have been in regular daily use in this colliery for four months. There are no indications of wear on them; their weight, in proportion to hemp, being as 21 cwt. to 47 cwt., the power of drawing has been increased by about thirty tons a day."
- "Your flat wire rope has been in constant use for eight months. I cannot perceive that it is in any manner deteriorated, and it appears as perfect as the day it was first used."
- "Having had several of your flat wire ropes, I bear willing evidence of their usefulness, economy, and safety, as compared with hemp ropes."
- "I have had your ropes at work for seventeen months; the whole are in excellent condition; they are far superior to hemp ropes in every respect. I can confidently recommend yours as superior to any I have seen."
- "Two of your wire ropes have been at work on our cheapest incline for thirteen months; they are now in excellent order. I can with confidence recommend your wire ropes—they have given us every satisfaction."
- "I have had your wire rope at work for twelve months, and like it very much. As to durability, compared with hemp, the difference is greatly in favour of your rope."
- "Your wire rope has been in constant use for twelve months, without the least appearance of defect or failure in any part. I consider it much superior to hemp rope, being more durable, and only about two-thirds the cost, besides being much lighter."
- "We have had your wire ropes at work in our shaft, or furnace pits, for thirteen months; it will last more than longer. Owing to the great heat, hemp ropes will not last above four or five months."
- "I have had your wire ropes at work for eighteen months; they are now, to all appearance, as good as when first put up. They are decidedly cheaper than hemp."
- "I am not yet able to speak as to the comparative economy of your wire ropes, as they are still in use. I can, however, speak decidedly as to their superiority for inclined planes, especially self-acting ones, as their weight being so much less than hemp, the economical motive force of gravity may be extended to many situations before inadmissible."
- "The average time a hempen rope has been at work is about twelve months. Your wire rope has now been at work six months, and shows no symptoms of wear."
- "It gives me great pleasure to testify to the value of your wire ropes. We have had them in use for nearly three years."
- "In every instance where I have tried your wire ropes on inclined planes they have proved greatly superior to hemp ropes."
- "We worked one of your ropes constantly, night and day, for fourteen months; the rope did its work admirably well."
- "We have had your ropes at work eight months, and are quite satisfied as to their efficiency."
- "Your wire rope has been at work twelve months, and is, to all appearance, nearly as good as new."
- "I have used your ropes for the last two years. I consider them to be a saving of nearly one-half, even on the poorest very low price of hemp."

TEAM WIRE WORKS, GATEHEAD.

GEORGE STEPHENSON, C.E.: TAPTON HOUSE, CHESTERFIELD.

A. WIGHTMAN, Superintendent: LONDON AND BLACKWALL RAILWAY.

R. STEPHENSON, C.E.: WESTMINSTER.

(Extract from speech at Blackwall Railway meeting, 20th February, 1843.—See Railway Times, March 5.)

J. COLTHURST, Manager: BRANDLING JUNCTION RAILWAY.

NICHOLAS WOOD, C.E.: BRANDLING JUNCTION RAILWAY.

(Evidence before committee.)

J. BLENKINSOPP, Engineer: DURHAM AND SUNDERLAND RAILWAY.

T. L. GOOCH, Engineer: MANCHESTER AND LEEDS RAILWAY.

THOMAS E. HARRISON, Engineer: PONTOP AND SOUTH SHIELDS RAILWAY.

JOHN BEECH, Engineer: SHREWSBURY CANAL.

T. R. GUPPY, C.E.: GREAT WESTERN STEAM-SHIP WORKS, BRISTOL.

FOR JOHN STEPHENSON: CHORLEY TUNNEL.

GEORGE MOULD:

J. COUTTS, Iron Ship-Builder: NEWCASTLE-ON-TYNE.

M. LIDDELL, Coal Viewer: GOSFORTH COLLIERY, NEWCASTLE.

PETER BROWN, Manager: INCE COLLIERY, WIGAN.

EDMUND GIBSON: CANNONBIE, DUMFRIESSHIRE.

(Witness agent to the Duke of Devonshire.)

JOHN THORMAN: RANTON COLLIERY.

(Engineer to the Marquis of Londonderry.)

JAMES GAIN, Engineer: HETTON COLLIERY, SUNDERLAND.

JAMES THOMPSON, C.E.: KIRKHOUSE, CUMBERLAND.

STEPHEN EDDY: SEIPTON, YORKSHIRE.

(Manager for the Duke of Devonshire.)

J. & J. CHARLESWORTH: WAKEFIELD.

J. W. BROWNE: SILKSTONE COLLIERY.

BENJAMIN BIRAM: WENTWORTH.

(Agent for Earl Fitzwilliam.)

THOMAS DUNN: SHEFFIELD.

CHARLES BENNET: CLAY CROSS.

JOHN WOODHOUSE: OVERSEA.

JOSEPH VIVIAN: NORTH ROSSKES.

WILSON & CO.: SUMMERLEIGH IRON-WORKS.

ABDIE & MILLAR: GLASGOW.

BENJAMIN BELL: NEWCASTLE.



The third annual general meeting of the Penobscot and Orono County Navigation Company was held on Wednesday, the 29th ultimo, at their offices in St. Marys Ave. Sir JOHN CAMPBELL, B. C. H., in the chair.

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MINNEAPOLIS AND ST. LOUIS GREAT NORTHERN RAILWAY COMPANY.—  
correspondent enquire as to this this declaration, as being counteracted,  
will, for a secretary, be introduced into Parliament, and candidate effort,  
the place having in Thursday been deposited at the office of the clerk of  
in years for the respective counties. The object is to make every railway  
was furnished to those of the southern and western, without being con-



## NORTHUMBERLAND

**LEGISLATION OF SLAVERY-TRADE.**—WAS LONDON RAILWAY.—In the Court of Queen's Bench, on Tuesday, a motion was made (Crompy in Bower) to remove certain clauses of bills upon shares in this railway. The action was originally tried in Surrey, and a verdict obtained for the plaintiff; a new nisi laid, however, was subsequently obtained for a remittitur, on the ground that, although the defendant had been a subscriber, he had never become a proprietor, as he had never had his certificate, and also, that the bills had not been legally made.—Mr. Thompson and Mr. James, on this occasion, showed cause against the rule, and Mr. Richard Simpson and Mr. Robert Chomley appeared for the defendant.—Lord Denman, in pronouncing judgment, said that, writing on the law, as it had been laid down in cases previously decided, he was of opinion that the words subscription, proprietor, and owners of shares, were not the same thing—that they were all members of the same category, all parties to the same Act of Parliament, and ought all to contribute when it was decided they were parties to it; and, with regard to the signature of the shares, none being attached to the authentication of the statute, only, he was of opinion, that if signed by the chairman who presided at the original meeting it was sufficient.—The whole judge concluding, the rule was discharged.







## NOTICES TO CORRESPONDENTS.

The *Mining Journal* is regularly published about two o'clock on Saturday afternoon, at the office, No. 25, FLEET-STREET, where it can always be obtained and there is no cause for irregularity in its supply, in town, either from neglect on the part of the agent through whom it is ordered; but, in respect to its transmission to country subscribers, the blame is shared with the Post-office authorities.

**DURHAM AND SUNDERLAND RAILWAY.**—As a correspondence is going on between the solicitors of this company and ourselves, on the subject of action for alleged libel, we defer offering any remarks, and must, for the present, postpone—if not, perhaps, eventually decline—the insertion of several letters received on the subject. We stated in our Notices to Correspondents last week, that we had received the papers, relating to the West Fowey Colliery, from Mr. Davis, and that we should take an early opportunity of looking them through, and giving insertion to that gentleman's letter, as also a careful digest of the matter submitted to us, which was far too copious to admit otherwise than as an abstract. In the interval of publication we have received a further communication from that gentleman, and fully agree with him, that the subject, however great may be its interest to those connected with the colliery, is not such as will justify occupying space in our Journal. We still ourselves of this means of stating, that we have the sanction of the writer to submit the papers (being copies of accounts, correspondence, &c.) to the personal of any parties interested. This course is by far the most prudent, as the question might otherwise have assumed a personal character—which we feel that our correspondent ("A Subscriber") will agree with us should, at all times, where practicable, be cautiously avoided.

Our first page being engaged by Messrs. Kewell and Co., for the publication of their Patent Wire Rope Locomotives, we have printed an enlarged sheet, that no inconvenience may be experienced from the occupation of so great a space by advertisements. There are several papers of considerable importance in our present Journal, worthy the especial attention of our readers; but we are, however, compelled to postpone the insertion of some articles we wished to appear this week.

**SEAR'S ROTARY ENGINE.**—Having had many applications for copies of the Journal in which our description of Mr. Sear's valuable invention appeared, and that number being out of print, we have re-published the article this week. We should be glad to receive communications on the subject from some of our correspondents, it being one of great importance; and doubtless many valuable facts might be elicited by the discussion.

"W." (Liverpool).—Mr. Smith's Archimedian Screw Propeller was fully described, with illustrations, in the Journal of the 18th of October.

"A New Subscriber" (London).—The Transactions of the Institution of Civil Engineers are regularly published in this Journal—generally, in the week during which the meetings occur.

John Badger (Cullington).—We should be glad to receive the communications referred to. What has occasioned the long silence of our correspondent—Have mining operations entirely ceased in his district?

**THE MARGAM WORKS ALMAHACK AND ENGINEERS' YEAR BOOK.**—This is one of several cheap and useful books published annually under the patronage of the Stationers' Company. The Number for 1844 is complete with interest, and may fairly be referred to as evidence of the vast improvements effected during the past few years in works of this description. Its contents are varied and cleverly written—comprising, besides the usual referential information, a number of excellent papers on scientific subjects—and, in the whole, presents, in a neat form, a great deal of generally interesting and useful intelligence.

**THE ILLUSTRATED MINING JOURNAL.**—The December part of this highly popular periodical fully maintains its character for interesting communications and talented illustrations; it is decidedly one of the best, as it is certainly the cheapest, of the monthly publications.

**THE CRITIC.** A Journal of Theatricals, Music, and the Exhibitions.—This work appears to present a useful and one of the "doing" in the world of pleasure, and those who find an interest in the subjects to which it is devoted, must find the Critic both useful and amusing.

More extensive premises than those lately occupied being found necessary, the establishment of the *Mining Journal* is REMOVED TO 25, FLEET-STREET (opposite St. Dunstan's Church).

## THE MINING JOURNAL, Railway and Commercial Gazette.

LONDON, DECEMBER 2, 1843.

\* Parties desirous of ordering the *Mining Journal*, can do so, either direct to the office, or through any news-vendor or bookseller in town or country. Notices of irregularity in its delivery are requested to be forwarded to the office, where every endeavour will be made to rectify the cause of complaint.

A hurried trip to the anthracite district of South Wales, since the publication of our last, has afforded us the opportunity of acquiring information as regards the mineral products of that portion of the Principality, and witnessing increased application of the advantages possessed in the several districts of cheapness of labour, and abundance of fuel for smelting purposes. We find, for instance, in our route by way of Neath, a ship canal, or cut, in course of construction by Mr. PATER, of Neath Abbey, works also erected for the manufacture of spelter and naphtha, in addition to the copper and iron-works in that immediate neighbourhood—at the Cambrian Works another furnace is about being blown in, as also one at the Margam Works, which, if we mistake not, belong to the same company. At Yaiscedwyn (Mr. CRANE'S) we find that the demand is beyond the make, while Trimmeran finds a ready sale at 3l. 5s.—both of these works manufacturing anthracite pig with hot-blast. At Ystalyfera, we are informed, their cold-blast iron is of a superior quality, and is much in demand, although the weekly make is not such as was anticipated. Several new projects are, we understand, entertained; and we may expect, ere long, to see the anthracite district vying with the bituminous range, the superiority of the iron manufactured being undoubted, and commanding, as such does, a higher price than iron produced from roasting coal, either with cold or hot-blast—the latter improving anthracite iron, while it deteriorates the quality of that produced by the use of bituminous coal.

We have this week given place to the data collated from the best sources at command, of the make of iron in the several districts, so that a comparison might be made with the tables introduced in our late Numbers, showing the returns up to June 30, 1843. As these, however, may be—and, doubtless, are—imperfect, we have to request our correspondents will favour us with corrections, which shall be duly noticed. Once perfect, or a near approximation arrived at, we shall have some remarks to offer on the altered state of the iron trade, its present position, and the prospects it presents.

The melancholy subject of Accidents in Mines again presents itself on our attention; and, if the task be a painful one in recording the awful extent of loss of life, it is with the pleasing hope that we shall yet awaken a Christian feeling in the breasts of the colliery proprietor and the mine adventurer, and more especially those of the lessee, or lords, who, regardless of the woe or woe of those employed, receive their rents, or royalties, and luxuriate on the ill-paid labour and the hard earned pittance of the working collier or miner. Noble lords there are, representatives of some of the first families of which England so proudly boasts—wealthy commoners, and philanthropic landowners—the merchant and the thrifty trader—who benefit by the labour of the miner, but who, with shame be it said, evince an utter disregard of his state, or that of the families left to the kindly treatment of the Union, when bereft of their support, on whom they were dependent. England is justly proud of her numerous charities, her hospitals for the sick and maimed, her asylums for the aged and decayed members of society, and her institutions for the support and protection of the widow and orphan; but, with shame, we repeat, be it spoken, a country is defiled, in a great measure, for her position to her mineral riches, which, though she possesses her numerous charitable establishments,

one which is devoted to the maimed or aged collier or miner, nor a fund wherewith to support the widow and the fatherless, who may be bereaved of their natural protector by accidents in mines. The very words, "Accidents in Mines," are of such continual occurrence in our columns, that the subject forms not one of the least and most harrowing records which it becomes our duty to chronicle; and while we must necessarily inflict pain, by so frequently directing attention to the sad loss of life which occurs, we yet trust that we shall awaken human sympathy, and, in the end, effect the object we have in view—which all are ready to laud, but who, at the same time, take care to avoid any interposition in favour of the miner, by opening their purses, or contributing to his wants.

A reference to our columns of to-day, as well as of the past week, afford too fearful evidence of the truth of our oft-made assertions, that accidents are on the increase, and that there is a sad want of attention on the part of the employer and his agent. We are fully aware that there are grounds for the excuse put forward by the colliery bailiff, or overman, in cases of fire damp—of the recklessness of the collier, and, at the risk of loss of life, his exposing the flame of the safety-lamp to the deleterious vapour, for the purpose of obtaining a little additional light; but this, surely, can be remedied by attaching locks to the lamps, and inflicting heavy penalties. Another cause of accident is, the improper gear and apparatus for raising and lowering the miners—the want of security of the rope—(although it is with pleasure we find that the wire rope is now getting more into use, yet the prejudices of many of the colliers in some parts are such, that it is hard to persuade them that a wire rope is secure, without it be of the same calibre as that of hemp). We have, in another column, recorded the loss of seven lives at the Llangeenoch Colliery, which we heard of by mere accident on a visit, made during the past few days to South Wales—affording, as such does, the most conclusive evidence that our list, from time to time, is most imperfect. Let the category of accidents to which we have referred, the gatherings of the brief space of a fortnight, speak for itself:—

Name of Mine.	Nature of Accident.	Fatal.	Inj.
Nov. 23 Houghton Lead Mine	Explosion in blasting	1	1
" South Hutton Colliery	Crushed to death	1	1
" Onslow Colliery	Fall in shaft	1	1
" Browney Quarry	Fall of rock	1	1
" Gerard's Bridge Colliery	Fall of roof	1	1
" Cyfarthfa Iron Works	Fire damp	1	1
" Menas, Wigan	Explosion of boiler	1	1
" Victoria Pit, Newham	Explosion of fire damp	1	1
" King Lane, Pwllheli	Fall in pit	1	1
" Winstanley Mines	Explosion of fire damp	1	1
Dec. 2 Breckinridge Colliery	Fall of bucket	1	1
" Cwm Dargod Colliery	Fire damp	1	1
" West Caradon Colliery	Bursting of boiler	1	1
" Cwmawmawr Pt., Cyfarthfa	Fire damp	1	1
" Plymouth Works	Fire damp	1	1
" Fawcett Colliery	Fall in pit	1	1
" Snow's Mine	Fall in shaft	1	1
" Llangeenoch Colliery	Fall of roof	1	1
" Ditto	Fall in shaft	1	1
" Pen-y-darren Iron Co.	Fall in pit	1	1
" Down	Fall in pit	1	1
" West Providence Mine	Explosion of powder	1	1
Total		25	18

\* Several persons much injured.

It will be thus seen that the deaths reported are 25 in number, and the injuries, 18, exclusive of those which, from the number of persons employed (in one instance fifty), are not noted—of these we may assume three fourths ended their sufferings by death. Here, then, we have recorded in our columns the loss of life of one thousand individuals annually—and assuming, as we have a right to do, that not one-fifth—may, we might say even one-tenth—of the accidents which occur find their way into the columns of the newspapers (of which we have one instance in the case of loss of life at the Llangeenoch Colliery, which we only acquired by visiting the district—no less than seven lives being sacrificed within five days), it must be manifest that the loss of life is horrible, and which we cannot but attribute to a want of systematic care and attention on the part of the proprietor and his agents. We find that among the accidents one has taken place at the works belonging to Sir JOHN GUNAR, Bart., M.P., and we trust we may, therefore, count on that gentleman's support, as we feel assured we may do on that of Mr. AID. COPELAND, M.P., on the subject being brought under the consideration of Parliament.

We have only, in conclusion, to state, that we are not idle in acquiring evidence, to submit to the respective authorities; but individual exertion is futile—and it is only by the union of interest and feeling, as well as by its proper application, that any good can be effected. We should be well pleased if Lord Ainstrey would take up the question—and, while we give the Noble Lord the high credit he so richly merits, for directing the attention of the Legislature to the state of the mining population, we hope he will consider, as a valuable adjunct to his measures, that of protecting the miner, and providing for the widow and orphan.

The sixth report of the Prussian and Oriental Steam Navigation Company, inserted in another column, will be read with interest—while the proceedings at the meeting are of a highly satisfactory character, the shareholders present having expressed themselves not only gratified with the report presented, but with the general management of the affairs of the company, of which they afforded the best evidence by voting an additional annual allowance to the board. It is pleasing to find, as in this instance, that the services of directors, where assiduity and attention are manifested, are duly appreciated by those who entrust their capital to their keeping—while the good sense evinced, of paying directors, will, we trust, be followed up in other companies, where gratuitous services have been performed—and, in too many instances, we fear, at the cost of the shareholders.

We regret to find that so much apathy should prevail on the part of the shareholders of the Bulwark Company, as to allow a meeting being adjourned "from week to week" which had been called for the confirmation of resolutions previously discussed and passed—the object of the meeting being, as we understand, merely in observance of a form prescribed by the Deed of Settlement. How can shareholders, who thus evince so much apathy, complain that there is not attention enough paid to their affairs on the part of the executives, or expect that the stewardship should be well directed, when there is no supervision or interest manifested by those most interested? We have received more than one letter on subject of the affairs of this company, but, being anxious to acquire information from other sources, have delayed their insertion. We trust that we may yet, as we expect, find it unnecessary to refer to them.

We have only to repeat, the shareholders have themselves to blame, for not attending the directors their request—or, if they have sought to exemption of, who are, then, second a meeting, and finally state their grievances!—We feel assured the directors are more than anxious to allow any change, however trivial, to pass unnoted.

## PATENT METALLIC SAND CEMENT.

At the Society of Arts, on Wednesday evening last, Benjamin Robt. Esq., V.P., F.R.S., in the chair, a highly interesting paper, by G. E. Dyer, Esq., of the firm of Benson, Logan, and Co., New Broad-street, on their Patent Metallic Sand Cement, was read by Mr. Whitshaw, the secretary.—The paper, after pointing out the peculiar chemical value of the metallic sand, stated that this cement had now been in extensive use upwards of ten years, without the slightest failure, except in those cases where, from the ignorance of the workmen, it had been improperly applied. The cement was composed of blue lias lime, mixed with the metallic sand, which was stated to be very similar to Italian porcelaine, the value of which in concrete, and in all sub-aqueous works, was undoubted, but the expense and difficulty of procuring which had prevented its extensive use. The metallic sand contained a greater proportion of iron than porcelaine, or any other material yet introduced to the public, and hence the indurating property which it possesses; and its granular form, and sharpness of its angles, would also be admitted as an additional reason for its extraordinary tenacity. As a concrete, it was mentioned that the metallic sand had been successfully employed in the entire foundations of the new Houses of Parliament, and was used by the Metropolitan Wood Paving Company in forming the sub-stratum on which their blocks were laid, and who were so convinced of its efficiency, that they secured from the patentees the exclusive privilege of using it for such a purpose; and to the unyielding nature of their foundations may be attributed, in a great degree, the successful results which have attended the work executed by that company. As a mortar, it was admirably adapted for tunnels, sewers, sea and river walls, and inverted arches, as being impervious to damp, and increasing in hardness from atmospheric influences. As a stucco for walls, as well as for all architectural ornaments, from the agreeable tone of colour which it assumes naturally, and retains without the aid of any colouring or painting, and from its entire freedom from vegetation, it was the most perfect substitute for stone ever yet introduced, and several large and highly enriched mansions erected in the counties of Surrey, Sussex, Hampshire, and Devonshire, during the last eight or nine years, coated and ornamented with the metallic sand cement, had been found, upon recent examination, free from the slightest failure. Among the mansions referred to, was that of the Earl of Egremont's, Silverton Park, near Exeter, erected from the designs of James Thomas Knowles, Esq., and which was considered one of the largest and most richly decorated of the private residences of the nobility in England. In the list of specimens works in London, recently executed, were mentioned, the Alfred Life Office, in Leithbury—an extensive range of offices built by Girtell and Peto, in Coleman-street—and the joint terminus of the South-Eastern Railway, at London-bridge, on which an observation tower, of considerable height and exposure, was most conspicuous. It was further stated, that the cement had resisted the severity of the climate of New York without receiving the slightest injury, as also had it done the exposure to the action of the sea spray in the look-out house at Horse Bay pier, which was stuccoed with the metallic cement about nine years ago, and now bears the appearance of granite, both in hardness and colour.

In fresco painting—a matter which was at this moment exciting so much attention for decoration in the new Houses of Parliament—the metallic sand stucco had been found highly valuable; the combination of the colours with the material imparting an almost endless durability to the work, and the face of the painting might be left in the usual manner, or brought to the highest polish. It was well known that some of the finest frescoes in Italy have suffered most materially and irreversibly from damp, and the insubstantiality of the walls upon which the colours, or other coat, had been laid. The process of fresco painting in Munich, adopted by the Professor Hess, had been inspected by Mr. W. B. Simpson, a decorator in London, and, in his opinion, the metallic sand cement was equal, if not superior, to any substance with which he had met, from its extreme density and hardness, and its effectual resistance to the entrance of any moisture. A splendid specimen of fresco painting—a portrait of Henry VIII.—executed twelve months ago, the ground being formed of metallic cement, surrounded by a grotesque vignette border, and foliage, &c., was exhibited, and was much admired; it will be left over the mantelpiece a short time for future inspection. The colours are so brilliant, that at a distance it has somewhat the appearance of enamel.

After the paper was read, Mr. Dyer explained the nature of the cement, and described the various specimens, which were left in the society's rooms for examination. The metallic sand, formed from copper slag, consisted, it was said, principally of iron, accompanied by zinc, arsenic, and silica, and is ground and sifted to different degrees of fineness, according to the nature of the work.

Some specimens of alkali, painted and trowelled up, equal to complete were handed round, and attracted considerable attention; the cost of the different variety of materials would depend upon the artist, as, in all cases, the wall or slab to receive the painting is considerably less expensive than any other description of cement. Some casts were upon the table, having the perfect appearance of chiselled stone, and an ornamental vase, which had been exposed to the atmospheric changes and influence for seven years, had its edges, lines of foliage, &c., as sharp and perfect as the first day it was cast.—Much conversation ensued, and the paper and specimens gave great satisfaction to the numerous body of members present.

**ROYAL CORNWALL POLYTECHNIC SOCIETY.**—On Wednesday, the 27th ult., the annual meeting of this society was held, when a considerable number of gentlemen from various parts of the county attended at the Hall, for the purpose of discussing various matters connected with the business of the institution. Sir Charles Lemon, Bart., M.P., occupied the chair. The report of the committee having been read and approved of, the following gentlemen were elected vice-presidents in the place of the four who retire this year:—The Right Hon. Lord Viscount John Lubbock, Treasurer, Esq., M.P.; Raymond Trevelyan, Esq.; and J. D. Gilbert, Esq. The committee were re-elected, and several new members added to the lists. The premiums for the ensuing year were decided upon, and a consideration of some matters connected with the award of the society's prizes, and the means of preserving the institution from being imposed upon, together with the examination of the treasurer's accounts, and the financial state of the institution, were deferred to the adjourned general meeting, which is fixed for Monday, December 18.

**THE LANCY TUNNEL.**—It is stated that, at the forthcoming sittings of the Zollverein Commission, at Berlin, a discussion of the import duties on cast-iron will be adopted in favour of Belgium. The great argument in support of the reduction is, the advantage which it is alleged the German States will thereby derive for their railroad constructions.

**RAILWAY RAILROADS.**—This subject having excited considerable attention, especially on the movement, and the views of the writer of the pamphlet having been greatly misrepresented, we are induced to insert a communication from the author, in explanation, and corrective of many mis-statements which have appeared in several publications. Whatever merits, if any, the question, as now before the public, may possess, it cannot be better developed than by discussion; and, without at all acknowledging the feasibility of the scheme, or agreeing in its alleged advantages, if adopted, we still cordially offered space for communications treating thereon—thus offering an opportunity to its opponents of exposing the absurdities with which they maintain the scheme to be absurd. The French papers have taken the matter up in a manner quite unusual with them, and the *Journal des Debats* states that no subject for the past three or four years has been so extensively discussed as that of Railway Railroads; an advertisement on the subject will also be found in another column.

**THE WATER-PUMP ON LAKELAND.**—At the meeting of the Cockerley Society, held at the Royal Cork Institution, a paper was read by Mr. Hennessey on the water-pump of Lakeland. The result of his calculations were, that if all the water in the streams in Lakeland were applied to mechanical purposes, it would produce a power equal to 2,815,328 horse-power. It was also calculated that the water capable of being applied to chemical uses, as dyeing, tanning, &c., amounts to between 200 and 300 millions of imperial gallons. That the water of Lakeland is pure, and, therefore, fitted for manufacturing purposes, was proved from various chemical and geological considerations.—*Cork Constitution.*

**WATER-BATTERY.**—M. Oze, of Nancy, has taken out a patent for a battery, which is to be supplied by means of compressed air acting against the natural atmosphere by which it is surrounded. M. Oze states that a patent issued in the case of his battery would be able, when compressed over an empty town, camp, or factory, at such a height as to be immediately available to attack, to pour balls, shells, and other projectiles, and to use the destruction of everything beneath him.











### PRICES OF MINING SHARES.

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City of Chicago	47	3	2,845	West Wagon	Je
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[illegible]

10,000 Captains Minimum

128	Pan Park	25	—	25.00	General Mining Assn.	25	—
129	Rhymney	50	25	50.00	Merchandise Company	50	—
130	St. Helen's Water	50	—	50.00	St. Helen's Water	50	—
131	South Tynan	70	10	70.00	St. Helen's Water	70	—
132	Synod House	70	—	70.00	St. Helen's Water	70	—
133	Tynan Park	40	10	40.00	St. Helen's Water	40	—
134	Wynne's View	—	—	—	St. Helen's Water	—	—
135	Wynne's View	—	—	—	St. Helen's Water	—	—
136	South Westgate	—	—	7.00	Royal Exchange	19	20
137	South Carolina	—	—	29.00	St. John's of the Bay	10	10
138	Speedwell	20	10	20.00	United Assurance	40	20
139	Treforthen	—	—	4.00	South American	14	—

Line.	Enter lgth.	Now Open.	Present total cost.	Per cent share.	Per cent share.	Last week's return.
Arbroath and Forfar Railway	13	15	£ 138,100	20	25	£100 7 0
Birmingham & Derby Junction	403	493	1,164,175	100	25	1265 0 0
Birmingham and Gloucester	35	35	1,251,200	100	01	1157 1 0
Birmingham Junction	38	38	471 7 2	30	55	100 0 0
Chorley and Blackburn	143	143	300,000	100	00	100 0 0
Dublin and Kingstown	6	6	340,000	00	116	513 1 0
Dundee and Arbroath	162	162	155,000	23	100	357 10 0

**SALE OF COPPER ORES AT SWANSEA.**

Line.	Enter lgth.	New Open.	Present ac- tual cost.	Pa. on share.	Yd. of share.	Last week's return.
Arnhem and Furler Railway	15	15	£ 128,100	25	25	£ 166 7 6
Birmingham & Derby Joint.	494	494	1,154,174	100	100	1,152 7 6
Birmingham and Gloucester	35	35	1,51,704	100	100	1,132 7 6
Branding Junction	29	29	471,5 7	30	30	166 3 6
Chesler and Northward.	141	141	208,824	40	40	109 3 6
Dublin and Kingston	6	6	540,202	100	118	618 11 6
Dundee and Arbroath	162	162	133,000	25	100	857 19 6
Durham and Sunderland	18	18	262,740	40	162	732 3 6
Eastern Counties	31	31	2,73,740	35	91	3117 11 6
Leamington and Glasgow	40	40	1,329,865	32	342	1928 19 6
Leamington and Ayr	40	40	1,329,865	30	49	1898 13 7
Gloucester and Greatport	102	102	722,000	100	100	722 3 6
Old Joint. & Chester & Crewe	1112	1112	2,575,130	100	211	798 3 6
Joint North of England.	74	40	1,50,000	100	84	1125 15 6

*By Ticket, on the 21th of November, at Mercurio.*

West & Wether	1182	1182	4,611,270	65	60	1182	5	7
Woll and Batty	81	81	613,260	20	22	109	19	4
Liverpool and Manchester	81	81	1,578,630	100	212	2430	12	3
London and Birmingham	173	173	3,953,621	100	217	13871	13	3
London and Blackwall	34	34	1,219,700	143	42	813	10	9
London and Northampton	34	34	3,456,346	30	421	3853	11	9
London and Colchester	102	102	1,219,700	143	142	198	7	7
London and Greenwich	102	102	2,150,404	143	42	813	10	9
London and South Western	222	222	2,560,304	40	509	4535	3	6
Manchester, Bolton, & Bury	10	10	777,267	35	56	723	1	1
Manchester & Birmingham	37	37	1,400,611	40	341	3001	9	9
Manchester and Leeds	37	37	3,456,346	70	40	4514	9	9
Midland Counties	37	37	1,719,223	80	86	2333	14	9
Derwent and Carlisle	1	1	1,201,200	194	73	1272	10	9
Swancliffe and Harrogate	1	1	202,290	194	30	308	17	10
Sheffield and Eastern	31	31	914,414	41	491	1062	9	9
North Midland	73	73	1,219,700	143	42	813	10	9
South Eastern	22	22	613,260	73	71	109	14	1
Paris and Rouen	—	—	1,120,000	29	294	3200	0	0
Paris and Orleans	—	—	1,000,000	29	294	4214	12	0

Shaw, Gervase and Eric, at the Austin Mart, restore

Worcester and Wym	15	29	635,014	50	05	120 1 3
Widford and Manchester	49	11	811,861	87 1/2	31	49 9 3
Widford and Worcester	47	07	7,305,372	109	25	105 14 3
Wiff Vale	59	07	5,042,179	—	—	8 27 1 1
Widford and Worcester	59	04	5,444,027	68	—	9 43 1 1
Worcester and North Midland	57	27	671,866	49	11 1/2	12 50 1 3

\* Including Northern and Eastern Railway. † Stock and toll to Worcester.  
 ‡ The Liverpool and Manchester toll is deducted.

### THAMES TUNNEL.

The number of passengers who passed through the Tunnel in the week ending December 31, was 25,016, yielding a revenue of £111 10s. 0d.

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JOINT-STOCK BANKS.			
Shares.	Company.	Paid.	Price
15,000	Agricult. & Com. of Ind.	10	—
40,000	London Joint-Stock	10	124

### MISCELLANEOUS

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**CURRENT PRICES OF MATERIALS IN CORNWALL.**

0-160000 (Spec. post card) 2x 12 Standard Devotee 2x 12

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1. *Shooting a Shot at 3 - Ridge*

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